Remarks

Claims 1-13 remain in this application. Claims 1 and 9 have been amended. Claims 1 and 9 are independent claims.

A. Rejection under 35 U.S.C. 101

In an Office action dated November 14, 2005, claims 1-13 were rejected under 35 U.S.C. 101 because the language of the claims raised a question as to whether the invention was directed merely to an abstract idea. The Examiner suggested that Applicants use the phrase "computer implemented" in the preamble of independent claims 1 and 9 to describe the invention, since this would cure the deficiency.

In response to the suggestion of the Examiner, Applicants have amended independent claims 1 and 9. The preamble of claim 1 now states that the computer executable software is for computer implemented classifying of image files. Similarly, the preamble of claim 9 has been amended to identify the invention as a computer implemented method. Applicants thank the Examiner for the suggestion as to how to cure the deficiency.

In view of the amendments to claims 1 and 9, Applicants assert that the pending claims satisfy the requirements of 35 U.S.C. 101. Reconsideration is requested.

B. Rejection under 35 U.S.C. 103

Claims 1-13 were also rejected under 35 U.S.C. 103(a). Claims 1-4 were rejected as being unpatentable over Manjunath and Deng in view of Manjunath and Ma. In the same manner as used in the Office action, the Manjunath and Deng reference will be referred to as "MD" and the Manjunath and Ma reference will be referred to as "MM." Claims 5 and 7 were rejected as being unpatentable over MD in view of MM and further in view of Kadtke et al. ("Kadtke"). Claim 6 was rejected over MD in view of MM and Kadtke and further in view of Melen. Claims 8-12 were rejected as being unpatentable over MD in view of MM, Kadtke and Melen and further in view of Wagner et al. ("Wagner"). Finally, claim 13 was rejected as being unpatentable over MD in view of MM, Kadtke, Melen and Wagner and further in view of Shu et al. ("Shu").

In response to the rejection of the claims, independent claims 1 and 9 have been amended to more clearly distinguish the claimed invention from the cited prior art. As amended, claim 1 describes the system decision module as including a task component configured to perform classification tasks, wherein an established sequential progression of decision making includes classification nodes for assigning class labels to an individual image file such that the class labels are available for matching a query when a search for the individual image file is subsequently conducted. The amendment to claim 1 provides clarity with regard to the invention being used to assign the class labels. That is, the components described in claim 1 are cooperative with regard to assignment of the class labels, which can then be used subsequently in conducting a search.

Support for the amendment to claim 1 may be found on page 3, lines 14-16 of the application as originally filed. The application states that the class labels that are selected as descriptors of a particular image are utilized for organization and "for matching a query when a search for the image is subsequently conducted."

The amendment to claim 9 is similar to that of independent claim 1. The computer implemented method is now described as including using automated processing techniques to define a dependent arrangement of task nodes that include multi-algorithmic task nodes. Each multi-algorithmic task node is specific to determining assignment of a particular class label for availability in matching a query in a subsequent search. Support for the amendment to claim 9 is the same as the support for the amendment to claim 1.

By amending claims 1 and 9 to describe the elements of the invention as being cooperative in assigning class labels, the invention is distinguished from components and method steps that are implemented to take advantage of class labels which have been previously assigned. In the determination of patentability of the claims prior to amendment, the teachings of the prior art with regard to assigning "class labels" were merged with the teachings of the prior art with regard to use of the class labels which were previously assigned. For example, in the rejection of claim 1, it is agreed that MD does not teach meta-data analysis for processing meta-data, but it is then noted that the secondary reference to MM teaches the use of meta-data on page 841, column 1, lines 18-20. However, the meta-data described in this portion of MM is specific to the "class labels" themselves (i.e., the texture

features) that have been extracted from the original image. Claim 1 describes the use of meta-data as being a means to achieve a result, whereas the meta-data of MM is the final result in the assignment of class labels. Similarly, the teachings of the primary reference to MD with respect to "post-label assignment" queries are cited in the rejection of the claims. For example, it is noted in an Examiner's Note (EN) that column 2, lines 41-43 on page 595 of MD teach that a query pattern request will be used to find a match.

Applicants respectfully request reconsideration of the claims in view of the amendments to the claims.

1. The Claimed Invention

Claim 1 describes computer implemented classification of files. A system decision module includes a number of components. The task component of the module is configured to perform classification tasks arranged in an established sequential progression of decision making. The established sequential progression of decision making includes a plurality of classification nodes for assigning class labels that are then available for matching a query when a search for the individual image file is subsequently conducted. For at least some of the classification nodes, alternative stored algorithms are available for execution. An algorithmic component is configured to select among the alternative stored algorithms for determining assignment of a same class label. The module also includes a sub-algorithmic component for selecting at least one sub-algorithmic routine for the selected algorithm. Moreover, a learning component is available for modifying the arrangement of classification tasks according to determinations of frequency patterns in the common assignments of the class labels to individual image files.

The computer implemented method of claim 9 includes establishing the sequential progression of decision making. Automated processing techniques define the dependent arrangement of task nodes, where each task node is associated with a class label. The task nodes include multi-algorithmic task nodes having a plurality of alternative algorithms for implementing the particular determination. When a file of non-textual subject data is received, the file is progressed through the dependent arrangement. The progression includes (a) selecting from among the alternative algorithms at the multi-algorithmic task nodes, and (b) utilizing an

algorithmic component to perform the selection at least partially based on prior determinations at previously encountered task nodes in the sequential progression.

2. Patentability of Independent Claim 1

Claim 1 was rejected as being unpatentable over the primary reference to MD in view of the secondary reference to MM. With regard to component (a) of claim 1 (i.e., the task component), it is noted that column 2 in MD describes segmentation of an image followed by a step of "looking for local image features which fall under texture, color and shape." It is also noted that in lines 41-43 of this column, a query pattern request will be used to find a match. The match is with a codeword in a feature code book. The code book provides an image thesaurus model that can be visualized as an image counterpart to text searching through a text document.

As previously noted, one difference between the amended claim and the teachings of the primary reference to MD is that claim 1 describes the class labels that are to be assigned as being available for matching a query when a search for the individual image file is subsequently conducted. The query pattern request identified in the Office action occurs after an image in a database has been assigned its proper class labels. Moreover, the cited portions of column 2 on page 595 of MD do not teach a sequential progression in which at least some of the classification nodes include algorithms for determining which of a plurality of alternative next classification nodes is to be encountered within the sequential progression of decision making. The search for a match between assigned codewords is distinguishable from the decision making regarding whether the assignment of the class labels is to be made.

With regard to component (b) in claim 1 (i.e., the algorithmic component), there is citation to the paragraph of the primary reference to MD that begins on page 595 and ends on page 596. This paragraph merely states that the long term goal is to construct a visual thesaurus for images/video, where the codewords of the thesaurus are created at various levels of visual hierarchy by grouping primitives such as texture, color, shape and motion. Applicants respectfully assert that this does not teach or suggest the algorithmic component that is common to the classification nodes and that is accessed by each classification node for selecting a specific algorithm for

each of the classification tasks. The primary reference describes examples of the codewords for texture as being "parking lots," "airport tarmacs," "building developments," "vegetation patterns," and "highways." Fig. 1 in MD is an example of a region-based retrieval of parking lot areas in aerial photographs. The different codewords are the results of the application of algorithms, rather than being algorithms themselves.

The Office action notes that MD does not teach meta-data analysis for processing meta-data. Therefore, the secondary reference to MM was cited. However, the reference to meta-data in column 1 on page 841 is the stored results of the process, rather than the use of meta-data to achieve this result for storage.

Also in component (b) of claim 1 is the description of at least some of the classification nodes in the sequential progression of decision making being configured to select among alternative stored algorithms that are specific to determining assignment of a same class label. The Office action asserts that this is taught by MD, since the primary reference refers to identification of color, shape, texture and location. Applicants respectfully point out that the alternative stored algorithms of claim 1 are specific to determining assignment of a same class label. Therefore, teachings regarding different class labels (e.g., color, shape and texture) do not read on claim 1. Additionally, the alternative algorithms of claim 1 relate to a particular classification node, whereas a person of ordinary skill in the art would consider classification nodes relating to color, shape and texture as being different classification nodes.

Component (b) of claim 1 identifies selection from alternative stored algorithms that are specific to determining assignment of a same class label, with prior determinations at classification nodes being used as the basis for selecting among the alternative algorithms specific to determining assignment of "said same class label." Then, in component (c) (i.e., the sub-algorithmic component), at least one sub-algorithmic routine is selected based on the selecting of the algorithm. With respect to component (c), the Office action cites column 2, lines 5-16 on page 597 of the primary reference to MD. This portion of the reference refers to the extension of the idea to videos. Within the given number of frames of a video, one frame is chosen for spatial segmentation. The regions obtained as a result of this segmentation are the ones that are tracked over the entire group of frames. Fig. 4 of MD is an example of region tracking over several groups of frames. Each video shot is

thus composed of a set of subobjects and the video shot can be characterized by its subobject information and the spatial and temporal relation between these subobjects. The representation allows a user to track regions in a video sequence and search for regions with similar color, texture, shape, motion pattern, location, or size. It is respectfully asserted that this neither teaches nor suggests the selection of sub-algorithmic routines for a specific algorithm selected from among alternative stored algorithms that are specific to determining assignment of a same class label. The composition of a set of subobjects from a video shot does not assign a class label.

While Kadtke was not cited with regard to claim 1, the Kadtke patent was used in the Office action with regard to its teachings of selecting from among alternative algorithms. Fig. 1 of Kadtke was cited for this teaching when referring to the rejection of claim 9. Applicants assert that it is critical to note that Kadtke is designed for use over a wide range of signal sources. Thus, it must be capable of manipulating signals from the various sources, even though the signals are fundamentally different. In the ABSTRACT of Kadtke, there is a teaching that the techniques of the invention use dynamic filters and classifiers optimized for a particular category of signals of interest. The first stated object in the OBJECTS AND ADVANTAGES at the bottom of column 1 of Kadtke is that the invention should provide a theoretical well-founded method of signal processing and time series analysis which can be used in a variety of applications, such as Sonar, Radar, Lidar, seismic, acoustic, electromagnetic and optic data analysis. Given the goal of the primary reference to MD and the secondary reference to MM, it would not be obvious to a person of ordinary skill in the art to include the features described in Kadtke.

In view of the amendment to claim 1, Applicants submit that the claim and its dependent claims are in an allowable condition.

3. Patentability of Independent Claim 9

With respect to the patentability of claim 9, the Office action notes that the primary reference to MD teaches segmentation as a first step of the process and teaches region-based search techniques as the next step. It is submitted in the Office action that these two steps of MD teach "establishing a sequential progression of decision making, including using automated processing techniques to define a dependent arrangement of a

plurality of task nodes, each said task node in said dependent arrangement being associated with a class label for classifying a data file." Applicants respectfully point out that the segmentation is not associated with a class label for classifying a data file. This first step of MD merely defines segments. Claim 9 describes a sequential progression of decision making. Task nodes include multi-algorithmic task nodes having a plurality of alternative algorithms for implementing the determination. It is submitted in the Office action that texture, color and location are but a few multi-algorithms not within the same class from which the task node of MD can pick. However, Applicants respectfully submit that a person of ordinary skill in the art would not interpret MD to teach a sequential progression of decision making in which the system decides to categorize based upon either texture, color or location. The reference does not appear to allow the system to select which features will be of interest. Instead, the sequential progression as taught by MD would be one in which the different types of features are considered in progression, if there is an established sequential progression as described in pending claim 9.

The patent to Wagner was cited for teaching a step of receiving a file of non-textual subject data. Applicants agree with this interpretation of Wagner.

The Office action notes that neither the primary reference to MD nor the secondary reference to MM teaches progressing a file through a dependent arrangement defined in said establishing said sequential progression of decision making. Therefore, Kadtke was cited. However, the fixed arrangement of Kadtke does not teach or suggest modifying the primary reference to MD such that at least some of the task nodes include algorithms for determining which alternative next task node is to be selected in the sequential progression of decision making.

Kadtke was also cited for teaching selecting from alternative algorithms at multi-algorithmic task nodes. It is asserted that it would be obvious to modify MD so as to include the multi-algorithmic task nodes taught by Kadtke, since this allows a simpler design when constructing the decision making process. However, Applicants assert that modifying MD to include the teachings of Kadtke would greatly increase the complexity. As noted with regard to the patentability of claim 1, the first stated object of Kadtke is to provide a "theoretically well-founded method of signal processing and time series analysis which can be used in a variety of applications (such as Sonar, Radar, Lidar, seismic, acoustic, electromagnetic and optic data analysis)

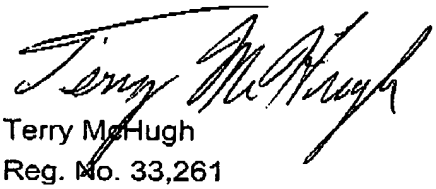
where deterministic signals are desired to be detected and classified." Thus, as noted in the ABSTRACT of Kadtke, the techniques use dynamic filters and classifiers optimized for a particular category of signals of interest. This capability and complexity is not advantageous to the system and method taught in MD.

Kadtke is also cited for the claim 9 feature of utilizing an algorithmic component to perform the selection that is at least partially based on prior determinations at previously encountered task nodes in the sequential progression. Applicants again submit that it would not be obvious to modify MD to include the complexity that is advantageous to the dynamic system of Kadtke, but unclear when referring to the sequencing taught by MD.

Melen was cited for teaching a media input/output module for administering data associated with classifying non-textual subject data by reading and writing the data among a plurality of modules. Neither Melen nor Shu was cited for teaching any of the features that were identified above as distinguishing the invention described in claims 1 and 9 from the other cited prior art references.

Applicants respectfully request reconsideration of the claims in view of the amendments and remarks made herein. A notice of allowance is earnestly solicited. In the case that any issues regarding this application can be resolved expeditiously via a telephone conversation, Applicants invite the Examiner to call Terry McHugh at (650) 969-8458.

Respectfully submitted,



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